

[4910-13-U]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39 [66 FR 8082 1/29/2001]

[Docket No. 2000-NM-125-AD; Amendment 39-12090; AD 2001-02-06]

RIN 2120-AA64

Airworthiness Directives; Empresa Brasileira de Aeronautica, S.A. (EMBRAER), Model EMB-120 Series Airplanes

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment supersedes an existing airworthiness directive (AD), applicable to all EMBRAER Model EMB-120 series airplanes, that currently requires revising the Airplane Flight Manual (AFM) to include requirements for activation of the ice protection systems and to add information regarding operation in icing conditions; installing an ice detector system; and revising the AFM to include procedures for testing system integrity. This amendment requires installing the ice detector system in accordance with revised procedures. This amendment is prompted by issuance of mandatory continuing airworthiness information by a foreign civil airworthiness authority. The actions specified by this AD are intended to ensure that the flightcrew is able to recognize the formation of significant ice accretion and take appropriate action; such formation of ice could result in reduced controllability of the airplane in normal icing conditions.

DATES: Effective March 5, 2001.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of March 5, 2001.

ADDRESSES: The service information referenced in this AD may be obtained from Empresa Brasileira de Aeronautica S.A. (EMBRAER), P.O. Box 343 - CEP 12.225, Sao Jose dos Campos - SP, Brazil. This information may be examined at the Federal Aviation Administration (FAA), Transport Airplane Directorate, Rules Docket, 1601 Lind Avenue, SW., Renton, Washington; or at the FAA, Atlanta Aircraft Certification Office, One Crown Center, 1895 Phoenix Boulevard, suite 450, Atlanta, Georgia; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

FOR FURTHER INFORMATION CONTACT: Thomas Peters, Aerospace Engineer, Systems and Flight Test Branch, ACE-116A, FAA, Atlanta Aircraft Certification Office, One Crown Center, 1895 Phoenix Boulevard, suite 450, Atlanta, Georgia 30349; telephone (770) 703-6063; fax (770) 703-6097.

SUPPLEMENTARY INFORMATION: A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) by superseding AD 97-26-06, amendment 39-10249 (62 FR 66512, December 19, 1997), which is applicable to all EMBRAER Model EMB-120 series airplanes, was published in the **Federal Register** on September 20, 2000 (65 FR 56811). The action proposed to continue to require revising the Airplane Flight Manual (AFM) to include requirements for activation of the ice protection systems and to add information regarding operation in icing conditions; installing an ice detector system; and revising the AFM to include procedures for testing system integrity. The action also proposed to require installing the ice detector system in accordance with revised procedures.

Comments

Interested persons have been afforded an opportunity to participate in the making of this amendment. No comments were submitted in response to the proposal or the FAA's determination of the cost to the public.

Conclusion

The FAA has determined that air safety and the public interest require the adoption of the rule as proposed.

Cost Impact

There are approximately 250 airplanes of U.S. registry that will be affected by this AD.

The AFM revisions currently required by AD 97-26-06 and retained in this AD take approximately 1 work hour per airplane to accomplish, at an average labor rate of \$60 per work hour. Based on these figures, the cost impact of the AFM revision on U.S. operators is estimated to be \$60 per airplane.

The complete installation currently required by AD 97-26-06 and retained in this AD takes approximately 53 work hours per airplane to accomplish, at an average labor rate of \$60 per work hour. Required parts cost approximately \$13,054 per airplane. Based on these figures, the cost impact of the installation on U.S. operators is estimated to be \$16,234 per airplane.

The additional installations described in Parts III and IV of EMBRAER Service Bulletin 120-30-0027 (Change 02, 03, or 04) will each take approximately 5 work hours per airplane. The additional tests described in Part VI will take approximately 2 work hours per airplane to accomplish. The average labor rate is \$60 per work hour. Information regarding the cost of parts required to accomplish the modifications described in Parts III and IV is unavailable at this time; there will be no cost for parts required to complete Part VI. Based on these figures, the cost impact of the additional modifications and tests required by this AD on U.S. operators required for those airplanes that have previously complied with the original issue or Change 01 of the service bulletin is estimated to be as high as \$420 per airplane (excluding parts).

The cost impact figures discussed above are based on assumptions that no operator has yet accomplished any of the requirements of this AD action, and that no operator would accomplish those actions in the future if this AD were not adopted. The cost impact figures discussed in AD rulemaking actions represent only the time necessary to perform the specific actions actually required by the AD. These figures typically do not include incidental costs, such as the time required to gain access and close up, planning time, or time necessitated by other administrative actions.

Regulatory Impact

The regulations adopted herein will not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, it is determined that this final rule does not have federalism implications under Executive Order 13132.

For the reasons discussed above, I certify that this action (1) is not a "significant regulatory action" under Executive Order 12866; (2) is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act. A final evaluation has been prepared for this action and it is contained in the Rules Docket. A copy of it may be obtained from the Rules Docket at the location provided under the caption "ADDRESSES."

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. Section 39.13 is amended by removing amendment 39-10249 (62 FR 66512, December 19, 1997), and by adding a new airworthiness directive (AD), amendment 39-12090, to read as follows:

AIRWORTHINESS DIRECTIVE



Aircraft Certification Service
Washington, DC

U.S. Department
of Transportation
**Federal Aviation
Administration**

We post ADs on the internet at "av-info.faa.gov"

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Title 14 of the Code of Federal Regulations (14 CFR) part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference 14 CFR part 39, subpart 39.3).

2001-02-06 EMPRESA BRASILEIRA DE AERONAUTICA, S.A. (EMBRAER):

Amendment 39-12090. Docket 2000-NM-125-AD. Supersedes AD 97-26-06,
Amendment 39-10249.

Applicability: All Model EMB-120 series airplanes, certificated in any category.

NOTE 1: This AD applies to each airplane identified in the preceding applicability provision, regardless of whether it has been modified, altered, or repaired in the area subject to the requirements of this AD. For airplanes that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (c)(1) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and, if the unsafe condition has not been eliminated, the request should include specific proposed actions to address it.

Compliance: Required as indicated, unless accomplished previously.

To ensure that the flightcrew is able to recognize the formation of significant ice accretion, which could result in reduced controllability of the airplane in normal icing conditions, accomplish the following:

RESTATEMENT OF CERTAIN REQUIREMENTS OF AD 97-26-06

(a) Within 30 days after January 23, 1998 (the effective date of AD 97-26-06, amendment 39-10249), accomplish paragraphs (a)(1) and (a)(2) of this AD.

AFM Revisions - Limitations Section

(1) Revise the Limitations Section of the FAA-approved Airplane Flight Manual (AFM) to include the following requirements for activation of the ice protection systems. This may be accomplished by inserting a copy of this AD in the AFM.

"TURN ON ICE PROTECTION SYSTEM and IGNITION SWITCHES AS FOLLOWS:

- **AOA, TAT, SLIP, ENGINE AIR INLET, and IGNITION SWITCHES:**
 - When atmospheric or ground icing conditions exist.
- **PROPELLER:**
 - When atmospheric or ground icing conditions exist, OR
 - At the first sign of ice formation anywhere on the aircraft.

- WING and TAIL LEADING EDGES, and WINDSHIELD:
 - At the first sign of ice formation anywhere on the aircraft.

NOTE: On takeoff, delay activation of the wing and tail leading edge de-ice systems until reaching the final segment speed.

NOTE: Atmospheric icing conditions exist when:

- Indicated Outside Air Temperature (OAT) during ground operations or Total Air Temperature (TAT) in flight is 10 degrees C or below; and
- Visible moisture in any form is present (such as clouds, fog with visibility of one mile or less, rain, snow, sleet, or ice crystals).

NOTE: Ground icing conditions exist when:

- Indicated OAT during ground operations is 10 degrees C or below; and
- Surface snow, standing water, or slush is present on the ramps, taxiways, or runways.

NOTE: For Operation in Atmospheric Icing Conditions:

- Follow the procedures in the Normal Procedures Section under Operation in Icing Conditions.”

AFM Revisions - Normal Procedures Section

(2) Revise the Normal Procedures Section of the FAA-approved AFM to include the following additional and revised information regarding operation in icing conditions. This may be accomplished by inserting a copy of this AD in the AFM.

“Under DAILY CHECKS of the Ice Protection System, add the following:

The following tests must be performed prior to the first flight of the day for which known or forecast icing conditions are anticipated.

Ice Detector System TEST Button (if installed).....PRESS
Check normal test sequence.

Under APPROACH Checklist, add the following:

Minimum Airspeed.....APPROPRIATE TO FLAP POSITION
(See Table Below)

| Gear/Flap | Minimum Recommended Airspeed |
|-----------|------------------------------|
| UP/0° | 150 KIAS |
| UP/15° | 130 KIAS |

Under OPERATION IN ICING CONDITIONS for FLYING INTO ICING CONDITION, *replace* the current AFM section information for normal icing conditions with the following:

- During flight, monitoring for icing conditions should start whenever the indicated outside air temperature is near or below freezing or when operating into icing conditions, as specified in the Limitations Section of this manual.

- When operating in icing conditions, the front windshield corners (unheated areas), propeller spinners, and wing leading edges will provide good visual cues of ice accretion.
- For airplanes equipped with an ice detection system, icing conditions will also be indicated by the illumination of the ICE CONDITION light on the multiple alarm panel.
- When atmospheric or ground icing conditions exist, proceed as follows:

AOA, TAT, SLIP, and ENGINE AIR INLET ON
 IGNITION Switches ON
 AIRSPEED (Flaps and Gear UP) 60 KIAS MINIMUM

- When atmospheric or ground icing conditions exist, OR
- At the first sign of ice formation anywhere on the aircraft, proceed as follows:

PROPELLER Deicing Switch ON
 Select NORM mode if indicated OAT is above -10°C (14°F) or COLD mode if indicated OAT is below -10°C (14°F).

- At the first sign of ice formation anywhere on the aircraft, proceed as follows:

WINDSHIELD ON
 WING and TAIL LEADING EDGE ON
 Visually evaluate the severity of the ice encounter and the rate of accretion and select light or heavy mode (1-minute or 3-minute cycle) based on this evaluation.

NOTE: On takeoff, delay activation of the wing and tail leading edge de-ice systems until reaching the final segment speed.

NOTE: The minimum NH required for proper operation of the pneumatic deicing system is 80%. At lower NH values, the pneumatic deicing system may not totally inflate, and the associated failure lights on the overhead panel may illuminate. If this occurs, increase NH.

Holding configuration:

Landing Gear Lever UP
 Flap Selector Lever UP
 N_P 85% MINIMUM
 Increase N_P as required to eliminate propeller vibrations.

Approach and Landing procedure:

Increase approach and landing speeds, according to the following flap settings, until landing is assured. Reduce airspeed to cross runway threshold (50 ft) at V_{REF}.

Flaps 15 - Increase Speed by 10 KIAS (130+10)
 Flaps 25 - Increase Speed by 10 KIAS (V_{REF25}+10)
 Flaps 45 - Increase Speed by 5 KIAS (V_{REF45}+5)

Go-Around procedure:

Reduce values from Maximum Landing Weight Approach Climb Limited charts by:
 1500 lbs. for PW 118 Engines
 1544 lbs. for PW 118A and 118B Engines

Flaps 15 - Increase approach climb speed by 10 KIAS (V_2+10);
Decrease approach climb gradient by:
3.0% for PW 118 Engines
2.9% for PW 118A and 118B Engines
Flaps 25 - Increase landing climb speed by 10 KIAS ($V_{REF25}+10$)
Flaps 45 - Increase landing climb speed by 5 KIAS ($V_{REF}+5$)

CAUTION: The ice protection systems must be turned on immediately (except leading edge de-icers during takeoff) when the ICE CONDITION light illuminates on the multiple alarm panel or when any ice accretion is detected by visual observation or other cues.

CAUTION: Do not interrupt the automatic sequence of operation of the leading edge de-ice boots once it is turned ON. The system should be turned OFF only after leaving the icing conditions and after the protected surfaces of the wing are free of ice.”

NEW REQUIREMENTS OF THIS AD

Ice Detector Installation

(b) For airplanes identified in any of Parts I, II, III, IV, V, and VI of EMBRAER Service Bulletin 120-30-0027, Change 02, dated December 3, 1997; Change 03, dated June 26, 1998; or Change 04, dated July 13, 1999: Within 30 days after the effective date of this AD, install an ice detector system in accordance with the service bulletin.

Alternative Methods of Compliance

(c) (1) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Atlanta Aircraft Certification Office (ACO), FAA. Operators shall submit their requests through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, Atlanta ACO.

(2) Alternative methods of compliance, approved previously in accordance with AD 97-26-06, amendment 39-10249, are approved as alternative methods of compliance with this AD.

NOTE 2: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Atlanta ACO.

Special Flight Permits

(d) Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the airplane to a location where the requirements of this AD can be accomplished.

Incorporation by Reference

(e) The ice detector system installation shall be done in accordance with EMBRAER Service Bulletin 120-30-0027, Change 02, dated December 3, 1997; EMBRAER Service Bulletin 120-30-0027, Change 03, dated June 26, 1998; or EMBRAER Service Bulletin 120-30-0027, Change 04, dated July 13, 1999. EMBRAER Service Bulletin 120-30-0027, Change 04, dated July 13, 1999, contains the following list of effective pages:

| Page Number | Change Level Shown on Page | Date Shown on Page |
|-----------------------------------|-----------------------------------|---------------------------|
| 1-4, 27-40, 43,44, 67, 68, 93, 94 | 04 | July 13, 1999 |
| 5-26, 41, 42, 45-66,69-92, 95-108 | 03 | June 26, 1998 |

This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from Empresa Brasileira de Aeronautica S.A. (EMBRAER), P.O. Box 343 - CEP 12.225, Sao Jose dos Campos - SP, Brazil. Copies may be inspected at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the FAA, Atlanta Aircraft Certification Office, One Crown Center, 1895 Phoenix Boulevard, suite 450, Atlanta, Georgia; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

NOTE 3: The subject of this AD is addressed in Brazilian airworthiness directive 97-06-03R1, dated December 15, 1997.

Effective Date

(f) This amendment becomes effective on March 5, 2001.

FOR FURTHER INFORMATION CONTACT: Thomas Peters, Aerospace Engineer, Systems and Flight Test Branch, ACE-116A, FAA, Atlanta Aircraft Certification Office, One Crown Center, 1895 Phoenix Boulevard, suite 450, Atlanta, Georgia 30349; telephone (770) 703-6063; fax (770) 703-6097.

Issued in Renton, Washington, on January 17, 2001.

Dorenda D. Baker, Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.